SANTA CRUZ BIOTECHNOLOGY, INC.

Gulo (P-13): sc-161693

BACKGROUND

Gulo (gulonolactone (L-) oxidase), also known as L-gulono-gamma-lactone oxidase (LGO), sfx, unh or unhip, is a 440 amino acid single-pass membrane protein of the microsome membrane and endoplasmic reticulum membrane. A member of the oxygen-dependent FAD-linked oxidoreductase family, Gulo contains one FAD-binding PCMH-type domain and converts hydrogen peroxide and L-gulono-1,4-lactone to L-xylo-hexulonolactone, which then forms L-ascorbate through spontaneous isomerization. Genetic Gulo deficiency is one cause of insufficient vitamin C synthesis, and unless obtained through diet, vitamin C deficiency is likely to result in a number of ailments including increased oxidative stress, decreased immune response and abmormal spermatogenesis. Gulo is encoded by a gene located on mouse chromosome 14.

REFERENCES

1. Kim, H.J., Lee, S.I., Lee, D.H., Smith, D., Jo, H., Schellhorn, H.E. and Boo, Y.C. 2006. Ascorbic acid synthesis due to L-gulono-1,4-lactone oxidase expression enhances NO production in endothelial cells. Biochem. Biophys. Res. Commun. 345: 1657-1662.
2. Gaut, J.P., Belaaouaj, A., Byun, J., Roberts, L.J., Maeda, N., Frei, B. and Heinecke, J.W. 2006. Vitamin C fails to protect amino acids and lipids from oxidation during acute inflammation. Free Radic. Biol. Med. 40: 1494-1501.
3. Li, W., Maeda N. and Beck, M.A. 2006. Vitamin C deficiency increases the lung pathology of influenza virus-infected Gulo-/- mice. J. Nutr. 136: 2611-2616.
4. Li, Y., Shi, C.X., Mossman, K.L., Rosenfeld, J., Boo, Y.C. and Schellhorn, H.E. 2008. Restoration of vitamin C synthesis in transgenic Gulo-/- mice by helper-dependent adenovirus-based expression of gulonolactone oxidase. Hum. Gene Ther. 19: 1349-1358.
5. Lee, C.W., Wang, X.D., Chien, K.L., Ge, Z., Rickman, B.H., Rogers, A.B., Varro, A., Whary, M.T., Wang, T.C. and Fox, J.G. 2008. Vitamin C supplementation does not protect L-gulono-γ-lactone oxidase-deficient mice from *Helicobacter pylori*-induced gastritis and gastric premalignancy. Int. J. Cancer 122: 1068-1076.
6. Harrison, F.E., Yu, S.S., Van Den Bossche, K.L., Li, L., May, J.M. and McDonald, M.P. 2008. Elevated oxidative stress and sensorimotor deficits but normal cognition in mice that cannot synthesize ascorbic acid. J. Neurochem. 106: 1198-1208.

CHROMOSOMAL LOCATION

Genetic locus: Gulo (mouse) mapping to 14 D1.

SOURCE

Gulo (P-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of Gulo of mouse origin.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-161693 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Gulo (P-13) is recommended for detection of Gulo of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Gulo (P-13) is also recommended for detection of Gulo in additional species, including equine.

Suitable for use as control antibody for Gulo siRNA (m): sc-145842, Gulo shRNA Plasmid (m): sc-145842-SH and Gulo shRNA (m) Lentiviral Particles: sc-145842-V.

Molecular Weight of Gulo: 50 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.